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FONTANA, VATICAN ARCHITECT

THE Romans were perhaps the most famous despoilers of the whole world, for their penchant of carrying off large monuments and statues and re-erecting them at home seemed to appeal to them as demonstrating their power and greatness. Early in the first century A. D., Emperor Caligula brought an obelisk, now known as the Vatican Obelisk, from Heliopolis to Rome. How such a huge stone, 88 feet long and weighing 325 tons, was erected is not known. However, for fifteen centuries it stood in the Circus of Nero, the only one of those brought to Rome to remain so. Had it been left as it was it would have met its companions' fate but for Dominicus Fontana.

The problem of moving this obelisk to a more prominent place in the city had interested several of the popes. Popular opinion, however, was that such a task was impossible; hence nothing had been done about it until Pope Sixtus V offered a prize for the most feasible method of moving the shaft. On September 18, 1585, more than five hundred attended a meeting to present their plans and models. Among them was Fontana of Mili. His plan aroused the interest of the Pope. However, owing to his lack of years, he was 42, two older architects, Aman-nati and de la Porte were commissioned to carry out the work. Fontana, as might be expected, was highly displeased with this turn of events and threatened to leave Rome, pleading as his excuse his unwillingness to accept the responsibility of any mistakes made by his superiors. This plea won him full charge of the moving operations.

Armed with his new powers he proceeded without delay to collect his lumber and building materials. Huge oak and walnut timbers from Campo Marto made up his scaffolding for the lifting of the obelisk. The main posts of the tower were 40 inches square, made up of four pieces lashed and banded together. The structure was so built that after the lifting of the shaft and lowering it to its cradle the whole assembly could be dismantled and re-erected over the new site.

From careful calculations Fontana determined upon 40 capstans operated by 800 men and 75 horses supplemented by five huge levers to do the job. Each capstan was to be worked by 10 men and 2 horses, an amount of power insufficient to break the tackle. Subsequent developments proved that his calculations were low.

After much preliminary work and testing of apparatus the great day was at hand and after receiving the benediction of the Pope the operations were commenced at daybreak April 28, 1586. Watched by scientific observers and the idle curious from all over the civilized world, the task went on with what must have seemed to the spectators exasperating slowness. From dawn until four o'clock that afternoon the combined efforts of 906

men and 75 horses were required to raise the obelisk two feet, a distance sufficient for the supporting cradle to be inserted beneath it. On the following day removal of the bronze corner supports was begun. As they were leaded into the supporting pedestal with long dovetails, the loosening of two of them required four days of constant chipping.

By the seventh of May lowering preparations were completed and the shaft lay recumbent on its cradle. On succeeding days the shaft was moved to its new location, 825 feet away, and the pedestal dug up and reset. Once the pedestal was reset it was but a matter of thirteen hours for the erection of the shaft. Records show that this magnificent engineering feat cost only \$44,000 to complete, a remarkably low expenditure for the amount of work involved.

This task was perhaps the greatest engineering job of its day and quite unlike modern operations was attended by much religious ceremony. Each step in the shifting of the obelisk was attended by deep religious fervor and at the start of each day's work high mass was held.

Rewards were heaped on Fontana for this piece of work. He was made pontifical architect, and a Knight of the Golden Spur; he received \$6000 and a substantial pension and all of the materials used in the operations, valued at \$24,000. This erection was not his only accomplishment; later he restored three other obelisks and finished the dome of St. Peter's begun by the famous Michaelangelo. Though Fontana's accomplishments were little known he was the foremost engineer of his time. Probably because he was concerned with the actual erection of the buildings rather than the creation and conception of them. His modern counterpart would be the construction engineer. He should be remembered for the remarkable things he accomplished with the crudest and simplest of machines.

—Civil Engineering.

"Hey! What's the idea of all that noise and pounding?"

"I drank sixteen ounces of liquor."

"And what's that got to do with it?"

"Well you know sixteen ounces make one pound."

Irate Chief Engineer—Say! Do you know what they do when these boats are late?

Coal Passer—Sure! They dock 'em.

Neighbor—Say, have you folks got a bottle opener around here?

Parent—Yeah, but he's away at college.